IN THE CLAIMS:

A listing of the claims, in accordance with 37 CFR §1.121, is provided. The listing of claims replaces all prior such listings of claims. Claim 8 is amended herein.

Claims 1-7 (Cancelled)

8. (Currently Amended) A method of assigning a function [[to]] corresponding to a phenotype and associated with a product coded for by a nucleotide sequence of a sample nucleic acid, said method comprising:

a) without any intervening bacterial cloning steps, delivering into and amplifying and expressing one or more members of an oligonucleotide family as individual transcription products in a plurality of recombinant non-bacterial host cells comprising a target nucleic acid molecule that comprises the nucleotide sequence of the sample nucleic acid, wherein:

the coding sequences for each individual transcription product encodes an antisense nucleic acid that, when expressed as RNA, binds to mRNA transcribed from the target nucleic acid molecule that comprises the nucleotide sequence of the sample nucleic acid; and

expression of one or more of the individual transcription products inhibits production of a product of the mRNA; and

b) in the resulting host cells, analyzing ~~phenotypic~~ changes in the phenotype to thereby assign ~~identify a corresponding change in function, whereby, based upon the corresponding change in function,~~ a function ~~is assigned to~~ associated with the product encoded by the nucleotide sequence of the sample nucleic acid.

9. (Original) The method according to Claim 8, wherein said function is a physiological function.

10. (Original) The method according to Claim 8, wherein said function is enzyme activity.

11. (Original) The method according to Claim 8, wherein said function is protein synthesis.

12. (Original) The method according to Claim 8, wherein said function is expression of a biological factor.

13. (Original) The method according to Claim 8, wherein said function is a regulatory effector function.

14. (Previously Presented) The method according to Claim 8, wherein said function is changed directly.

Claims 15-57 (Cancelled)

58. (Previously Presented) The method of claim 8, wherein the one or more members of the oligonucleotide family are introduced into expression vectors, which are introduced into the host cells, wherein the expression vectors comprise:

double-stranded DNA, comprising:

a sense strand and an antisense strand, wherein the sense strand codes for an antisense strand that, when expressed as RNA, binds to an mRNA sequence transcribed from the target nucleic acid sequence so that expression of a product from the target nucleic acid is inhibited; and

means for determining directionality of expression, wherein the product is associated with at least one phenotypic property of a host cell containing the mRNA sequence; and wherein the expression vector is for expression in non-bacterial host cells.

59. (Previously Presented) The method of claim 58, wherein the RNA comprises:

a catalytic domain that cleaves an mRNA sequence transcribed from the target nucleic acid; and

binding sequences flanking the catalytic domain for binding the RNA to the mRNA, and/or wherein the means for determining directionality of expression comprises a different non blunt-ended restriction enzyme site at each end of said double-stranded DNA.

60. (Original) The method of claim 59, wherein the double-stranded DNA is formed by contacting a first oligonucleotide with a complementary second oligonucleotide, and/or wherein the non blunt-ended restriction enzyme site is complementary to an end of the expression vector.

61. (Original) The method of claim 59, wherein said expression vector is formed by: (a) contacting a double-stranded oligonucleotide with an expression vector; or (b) by contacting a single-stranded oligonucleotide with said expression vector; or (c) contacting a triple-stranded oligonucleotide with an expression vector.

62. (Previously Presented) The method of claim 58, wherein the expression vector is a plasmid or a virus for expression in non-bacterial host cells.

63. (Original) The method of claim 62, wherein the virus is a retrovirus or an adeno-associated virus.

64. (Previously Presented) The method of claim 58, wherein the expression vector is transfected directly into mammalian cells.

65. (Previously Presented) The method of claim 8, wherein the sample nucleic acid is genomic DNA, cDNA, an expressed sequence tag (EST) or RNA.

66. (Previously Presented) The method of claim 8, wherein the family contains between 3 and 20 members.

67. (Previously Presented) The method of claim 8, wherein each member of the family is designed to inhibit the production of a product of the target nucleic acid molecule.

68. (Previously Presented) The method of claim 8 that is performed in a high throughput format, whereby all members of a family are assessed in a single experiment.

69. (Previously Presented) The method of claim 8 that is performed in a high throughput format, whereby a plurality of different target nucleic acid molecules and/or sample nucleotide sequences are assessed.

70. (Original) The method of claim 59, wherein the expression vector is a plasmid or a virus for expression in non-bacterial host cells.

71. (Original) The method of claim 60, wherein the expression vector is a plasmid or a virus for expression in non-bacterial host cells.

72. (Original) The method of claim 61, wherein the expression vector is a plasmid or a virus for expression in non-bacterial host cells.